

GEO CASE STUDIES



HIGHLIGHTS:

Type of Building:
Bi-Level Home,

Size of Building:
1,200 square feet on
a 1,200 square foot
basement.

Property Size:
6 acres.

**Total Geothermal
Capacity Required:**
5 nominal tonnes.

GeoSmart Equipment:
GeoSmart Premium G
with desuperheater.

Ductwork:
Retrofitted.

Loop Type:
Horizontal ¾"
closed loop.

Geothermal Specialist:
Owens Pump Service

In 2007, faced with an aging wood oil furnace, Stan and Gloria Doehle were looking for a heating and cooling alternative that would bring long-term energy savings and year-round comfort to their 1,200 square foot* bi-level home in the beautiful rural community of Baynes Lake, British Columbia.

After exploring several options, the clean, low maintenance and cost-effective characteristics of geothermal technology convinced them that it was the right way to go. The decision was a big one for the Doehles who live in a community of 200 people where propane, wood and oil are the traditional heating and cooling standbys.

Following consultation with GeoSmart Energy's Territory Manager Garry Meadows and GeoSmart's Geothermal Specialist Carl Lind of Owens Pump Service, the Doehles opted to install a Premium G forced air unit with a desuperheater. The installation was completed using a horizontal closed loop system.

Although he has a well on his six acre property, and had the option of using an open loop system, Stan is convinced that the closed loop system was the optimum choice, and welcomed the insights provided by Garry and Carl in making his decision.

"If you have a water well on your property it doesn't necessarily mean that an open loop system is the only choice for you," Stan says. "I didn't want to have to deal with a discharge well, constant water flow and possible issues with the level of the water table down the road, so in my mind, this was the best option for me and Garry and Carl supported that."

The closed loop system involved laying down 3,200 feet of GeoSmart's PE100 ¾" high density geothermal green pipe in 150 feet of eight foot deep trenches. Stan was adamant about preserving the trees on his property, so Carl Lind and his team skillfully dug trenches that allowed them to weave the loop system between the trees.

The compact five-tonne capacity Premium G heat pump was installed in the home's mechanical room in the basement following removal of the much larger 800 pound furnace. The existing ductwork was retrofitted to accommodate the geothermal unit.

With the room he gained in the mechanical room, Stan had his unit fitted with a desuperheater that preheats domestic water and delivers it directly to his existing electric hot water tank. In the heating mode, hot water is generated at the efficiency of the heat pump. In cooling mode, waste heat is recovered generating free hot water.

"That is one of the biggest savers on the energy alone right there," says Stan. "Because our hot water tank normally absorbs a huge consumption of power, the desuperheater

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preheats the water before it even gets to the tank, so it substantially saves on our electrical bills."

Since installing the Premium G, Stan's wife Gloria has noticed a significant difference in the consistency of the temperature throughout the house. "I don't have to wear my slippers in the basement anymore!"

The Premium G is recognized for providing quiet, consistent and comfortable heating and cooling throughout every room in the house and offers superior humidity control. The system can dramatically change its capacity based on current weather conditions, working at low capacity on mild days for exceptional efficiency, and automatically shifting to full capacity on days where the weather is more extreme.

"Even at -30C, it's only costing us \$38/month to heat our house during the coldest days of the year. The energy savings are huge."

And when it comes to his impression of GeoSmart dealer Owens Pump Service, the response is instant. "First rate all the way!"

Stan's passion for geothermal technology has extended well beyond his personal home installation experience. He has since referred five new customers to Owens Pump Service and has become a strong advocate for geothermal in British Columbia. His efforts have taken him to the BC Utilities Commission and British Columbia's Minister of Energy, Mines and Natural Resources. Insurance companies are next.

He believes utility and insurance companies can play a key role in supporting sustainable energy alternatives like geothermal technology by providing incentives for homeowners who install more energy efficient systems that reduce the carbon footprint.

The Doehles were able to leverage a \$3,500 federal grant towards the installation costs for their geothermal system in 2007. Since then, the BC government has introduced LiveSmart BC, and efficiency incentive program providing homeowners with added financial incentives that complement the federal program.

"I'm amazed at how little people know about geothermal technology and what it can do from both an environmental and energy savings standpoint," Stan says. "With greater incentives available to homeowners, imagine the impact we could have on this province's carbon footprint – the possibilities are enormous."

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